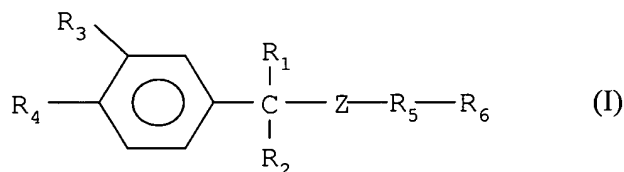


WHAT IS CLAIMED:

1. A radically polymerisable composition, characterised in that it comprises:

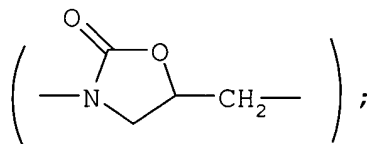
- at least one monofunctional monomer having the formula (I) below:



in which:

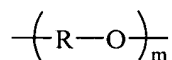
- R_1 and R_2 , which are identical or different, independently are hydrogen or an alkyl radical, which is linear or branched and comprises 1 to 4 carbon atoms;
- R_3 and R_4 , which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;

- Z represents a carbamate function ($-\text{NH}-\text{CO}-\text{O}-$), a thiocarbamate function ($-\text{NH}-\text{CO}-\text{S}-$), a urea function ($-\text{NH}-\text{CO}-\text{NR}_7-$, in which R_7 represents a hydrogen or a linear, branched or cyclic alkyl group which comprises 1 to 6 carbon atoms) or an oxazolidone function



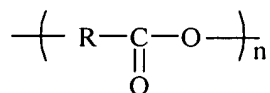
- R_5 is selected from the group consisting of:

+ alkylene oxide radicals and polyalkylene oxide chains of formula:



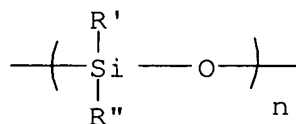
in which the R groups, which are identical or different when $m \geq 2$, are alkylene radicals which are linear or branched and which comprise 2 to 5 carbon atoms, and in which m is an integer selected such that the total number of carbon atoms of said alkylene oxide radicals and polyalkylene oxide chains is between 2 and 112;

+ ester radicals and polyester chains of formula



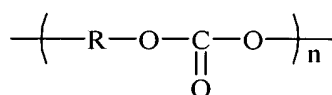
in which the R groups, which are identical or different when $n \geq 2$, are alkylene radicals which are linear or branched and which comprise 2 to 5 carbon atoms, and in which n is an integer selected such that the total number of carbon atoms of said ester radicals and polyester chains is between 2 and 168;

+ siloxane radicals and polysiloxane chains of formula



in which the R' groups and the R'' groups, which are independently identical or different when $n \geq 2$, are alkyl radicals which comprise 1 or 2 carbon atoms, and n is an integer between 1 and 18; and

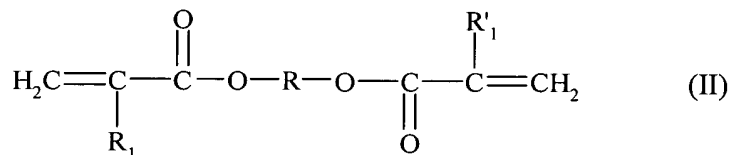
+ carbonate radicals and polycarbonate chains of formula



in which the R groups, which are identical or different when $n \geq 2$, are alkylene radicals which are linear or branched and which comprise 1 to 5 carbon atoms, and in which n is an integer between 1 and 21; and

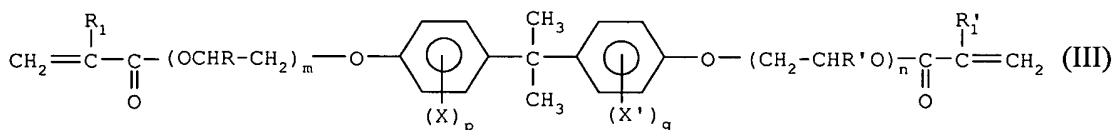
- R₆ is an alkyl radical or an aryl radical; and

• at least one difunctional monomer selected from those of formula (II) and formula (III) below:



in which:

- R₁ and R'₁, which are identical or different, independently are hydrogen or a methyl group;
 - R is an alkylene radical which is linear or branched and which comprises 2 to 8 carbon atoms; a cycloalkylene radical comprising 3 to 6 carbon atoms; an ether radical of formula (R'-O-R'') in which R' and R'', which are identical or different, independently are an alkylene radical which is linear or branched and which comprises 2 to 4 carbon atoms;



in which:

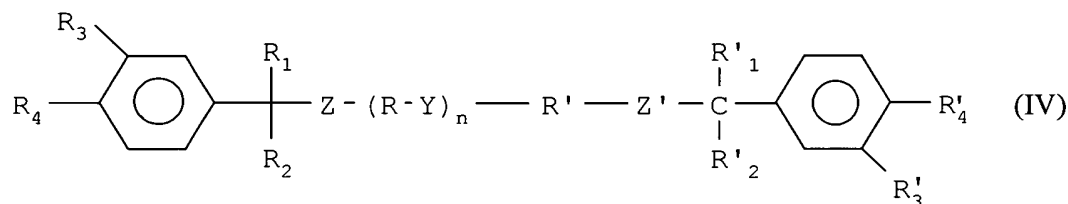
- R₁, R'₁, R and R', which are identical or different, independently are hydrogen or a methyl group;
 - m and n are, independently, integers between 0 and 4 inclusive;
 - X and X', which are identical or different, are a halogen; and
 - p and q are, independently, integers between 0 and 4 inclusive.

2. The composition according to claim 1, wherein said composition comprises at least one monofunctional monomer of formula (I) in which R_3 is an isopropenyl radical.

3. The composition according claim 1, wherein said composition comprises at least one monofunctional monomer of formula (I) in which R_5 represents an alkylene oxide radical or a polyalkylene oxide chain.

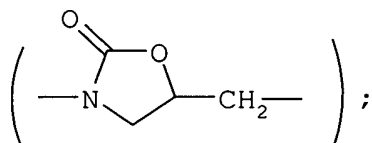
4. The composition according claim 2, wherein said composition comprises at least one monofunctional monomer of formula (I) in which R_5 represents an alkylene oxide radical or a polyalkylene oxide chain.

5. The composition according to claim 1, wherein said composition further comprises at least one other difunctional monomer of formula (IV):

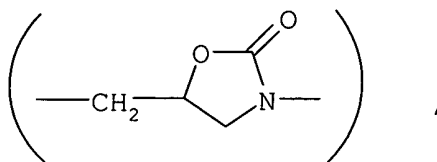


in which:

- R_1 , R'_1 , R_2 and R'_2 , which are identical or different, independently are hydrogen or an alkyl radical which is linear or branched and which comprises 1 to 4 carbon atoms;
- R_3 and R_4 , which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
- R'_3 and R'_4 , which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
- Z represents a carbamate function ($-\text{NH}-\text{CO}-\text{O}-$), a thiocarbamate function ($-\text{NH}-\text{CO}-\text{S}-$), a urea function ($-\text{NH}-\text{CO}-\text{NH}-$) or an oxazolidone function



- Z' , independent of Z , represents a carbamate function ($-\text{O}-\text{CO}-\text{NH}-$), a thiocarbamate function ($-\text{S}-\text{CO}-\text{NH}-$), a urea function ($-\text{NH}-\text{CO}-\text{NH}-$) or an oxazolidone function



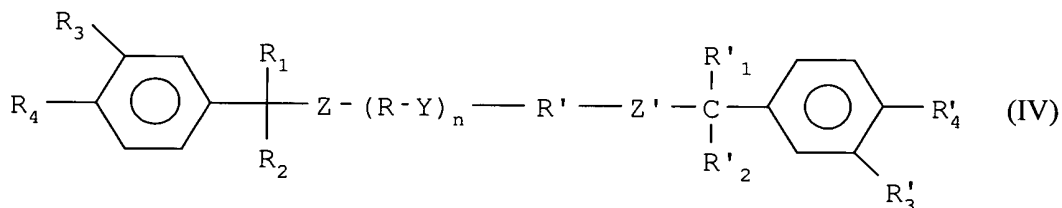
- R' represents an alkylene radical, which is linear or branched and which comprises 2 to 4 carbon atoms;
- R, which is identical or different when $n \geq 2$, is an alkylene radical which is linear or branched and which comprises 2 to 4 carbon atoms;
- Y, which is identical or different when $n \geq 2$, is oxygen or sulphur; and
- n is an integer selected such that the total number of carbon atoms contained in the long chain situated between the two units Z and Z' is equal to at least 18.

6. The composition according to claim 5, wherein at least one of R_3 , R'_3 , R_4 , and R'_4 is an isopropenyl radical.

7. The composition according to claim 5, wherein $R_3 = R'_3$ and wherein $R_4 = R'_4$.

8. The composition according to claim 5, wherein n is an integer selected such that the total number of carbon atoms contained in the long chain situated between the two units Z and Z' is between 18 and 112 inclusive.

9. The composition according to claim 2, wherein said composition further comprises at least one other difunctional monomer of formula (IV):



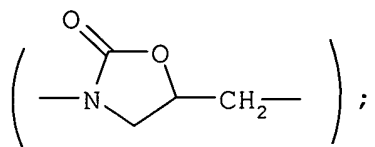
in which:

- R_1 , R'_1 , R_2 and R'_2 , which are identical or different, independently are hydrogen or an alkyl radical which is linear or branched and which comprises 1 to 4 carbon atoms;

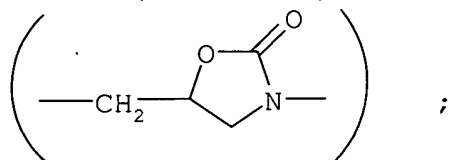
- R_3 and R_4 , which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;

- R'_3 and R'_4 , which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;

- Z represents a carbamate function (-NH-CO-O-), a thiocarbamate function (-NH-CO-S-), a urea function (-NH-CO-NH-) or an oxazolidone function

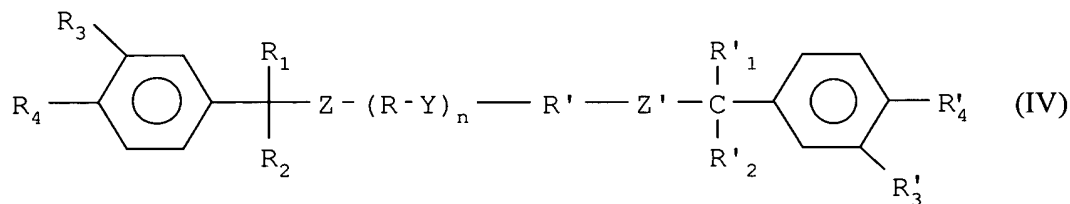


- Z', independent of Z, represents a carbamate function (-O-CO-NH-), a thiocarbamate function (-S-CO-NH-), a urea function (-NH-CO-NH-) or an oxazolidone function



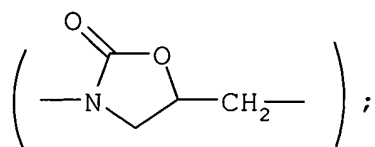
- 5 - R' represents an alkylene radical, which is linear or branched and which comprises 2 to 4 carbon atoms;
 - R, which is identical or different when $n \geq 2$, is an alkylene radical which is linear or branched and which comprises 2 to 4 carbon atoms;
 - Y, which is identical or different when $n \geq 2$, is oxygen or sulphur; and
 10 - n is an integer selected such that the total number of carbon atoms contained in the long chain situated between the two units Z and Z' is equal to at least 18.

10. The composition according to claim 3, wherein said composition further comprises at least one other difunctional monomer of formula (IV):

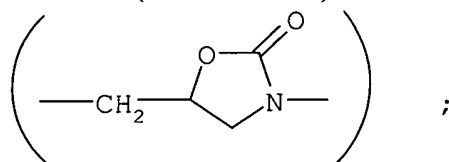


in which:

- R₁, R'₁, R₂ and R'₂, which are identical or different, independently are hydrogen or an alkyl radical which is linear or branched and which comprises 1 to 4 carbon atoms;
 20 - R₃ and R₄, which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
 - R'₃ and R'₄, which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
 - Z represents a carbamate function (-NH-CO-O-), a thiocarbamate function
 25 (-NH-CO-S-), a urea function (-NH-CO-NH-) or an oxazolidone function

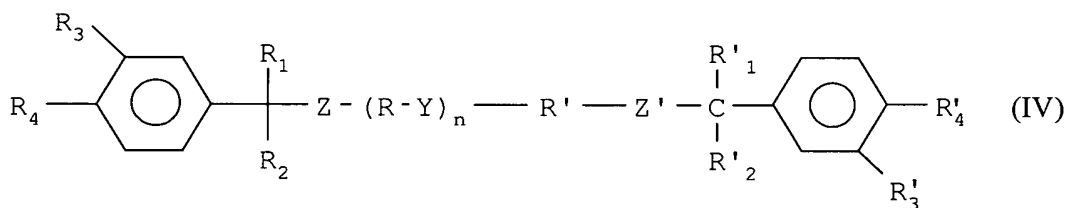


- Z', independent of Z, represents a carbamate function (-O-CO-NH-), a thiocarbamate function (-S-CO-NH-), a urea function (-NH-CO-NH-) or an oxazolidone function



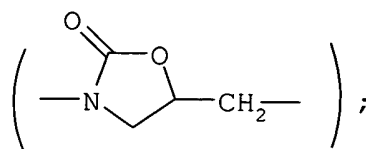
- 5 - R' represents an alkylene radical, which is linear or branched and which comprises 2 to 4 carbon atoms;
 - R, which is identical or different when $n \geq 2$, is an alkylene radical which is linear or branched and which comprises 2 to 4 carbon atoms;
 - Y, which is identical or different when $n \geq 2$, is oxygen or sulphur; and
 10 - n is an integer selected such that the total number of carbon atoms contained in the long chain situated between the two units Z and Z' is equal to at least 18.

11. The composition according to claim 4, wherein said composition further comprises at least one other difunctional monomer of formula (IV):

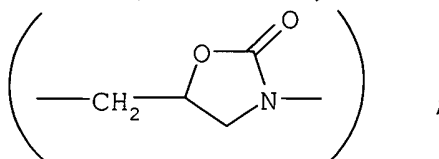


in which:

- R₁, R'₁, R₂ and R'₂, which are identical or different, independently are hydrogen or an alkyl radical which is linear or branched and which comprises 1 to 4 carbon atoms;
 20 - R₃ and R₄, which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
 - R'₃ and R'₄, which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;
 - Z represents a carbamate function (-NH-CO-O-), a thiocarbamate function
 25 (-NH-CO-S-), a urea function (-NH-CO-NH-) or an oxazolidone function



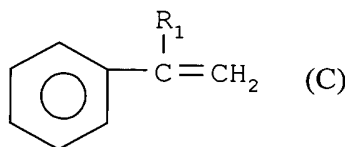
- Z', independent of Z, represents a carbamate function (-O-CO-NH-), a thiocarbamate function (-S-CO-NH-), a urea function (-NH-CO-NH-) or an oxazolidone function



- 5 - R' represents an alkylene radical, which is linear or branched and which comprises 2 to 4 carbon atoms;
 - R, which is identical or different when $n \geq 2$, is an alkylene radical which is linear or branched and which comprises 2 to 4 carbon atoms;
 - Y, which is identical or different when $n \geq 2$, is oxygen or sulphur; and
 10 - n is an integer selected such that the total number of carbon atoms contained in the long chain situated between the two units Z and Z' is equal to at least 18.

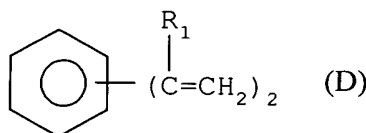
12. The composition according to claim 1, wherein said composition further comprises:

- 15 - at least one aromatic monovinyllic monomer of formula (C):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one aromatic divinyllic monomer of formula (D):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):



in which $\text{R} = \text{H}$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy($\text{C}_1\text{--C}_4$)alkyl radical or a

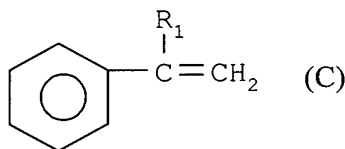
polyoxyethylene group of formula $-(CH_2-CH_2-O)_nR''$ in which n is an integer between 1 and 10 and $R'' = CH_3$ or C_2H_5 ;

- diallylphthalate;
- at least one acrylic monomer having at least three reactive functions; or
- combinations thereof.

13. The composition according to claim 12, wherein said at least one acrylic monomer having at least three reactive functions is selected from the group consisting of pentaerythritol triacrylate, pentaerythritol tetraacrylate, propoxylated glycerol triacrylate, trimethylolpropane triacrylate, polyurethane triacrylate, dipentaerythritol hexaacrylate, and combinations thereof.

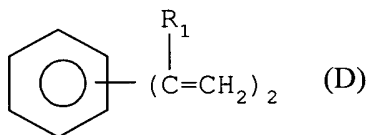
14. The composition according to claim 2, wherein said composition further comprises:

- at least one aromatic monovinyllic monomer of formula (C):



in which $R_1 = H$ or CH_3 ;

- at least one aromatic divinyllic monomer of formula (D):



in which $R_1 = H$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):

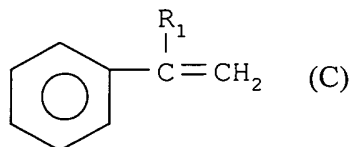


in which $R = H$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C_1 - C_4)alkyl radical or a polyoxyethylene group of formula $-(CH_2-CH_2-O)_nR''$ in which n is an integer between 1 and 10 and $R'' = CH_3$ or C_2H_5 ;

- diallylphthalate;
- at least one acrylic monomer having at least three reactive functions; or
- combinations thereof.

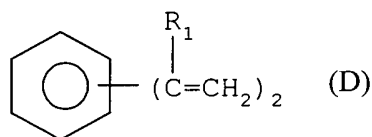
15. The composition according to claim 3, wherein said composition further comprises:

- at least one aromatic monovinyllic monomer of formula (C):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one aromatic divinyllic monomer of formula (D):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):



in which $\text{R} = \text{H}$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy($\text{C}_1\text{-C}_4$)alkyl radical or a polyoxyethylene group of formula $-(\text{CH}_2\text{-CH}_2\text{-O})_n\text{R}''$ in which n is an integer between 1 and 10 and $\text{R}'' = \text{CH}_3$ or C_2H_5 ;

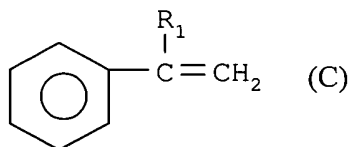
- diallylphthalate;

- at least one acrylic monomer having at least three reactive functions; or

- combinations thereof.

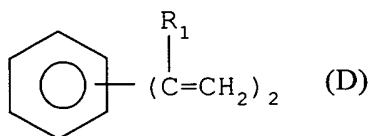
16. The composition according to claim 4, wherein said composition further comprises:

- at least one aromatic monovinyllic monomer of formula (C):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one aromatic divinyllic monomer of formula (D):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):

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in which $\text{R} = \text{H}$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C_1 - C_4)alkyl radical or a

10 polyoxyethylene group of formula $-(\text{CH}_2-\text{CH}_2-\text{O})_n\text{R}''$ in which n is an integer between 1 and 10 and $\text{R}'' = \text{CH}_3$ or C_2H_5 ;

- diallylphthalate;

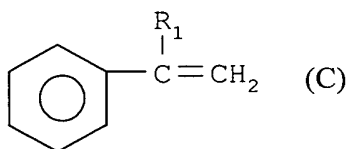
- at least one acrylic monomer having at least three reactive functions; or

- combinations thereof.

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17. The composition according to claim 5, wherein said composition further comprises:

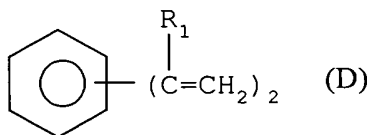
- at least one aromatic monovinyl monomer of formula (C):



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in which $\text{R}_1 = \text{H}$ or CH_3 ;

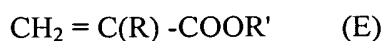
- at least one aromatic divinyl monomer of formula (D):



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in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):

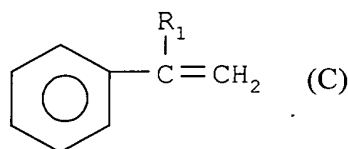


in which R = H or CH₃ and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C₁-C₄)alkyl radical or a polyoxyethylene group of formula -(CH₂-CH₂-O)_nR" in which n is an integer between 1 and 10 and R" = CH₃ or C₂H₅;

- 5 - diallylphthalate;
 - at least one acrylic monomer having at least three reactive functions; or
 - combinations thereof.

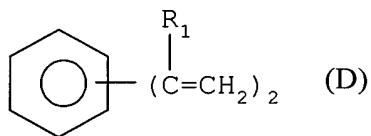
18. The composition according to claim 9, wherein said composition further
 10 comprises:

- at least one aromatic monovinyl monomer of formula (C):



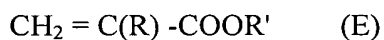
in which R₁ = H or CH₃;

- 15 - at least one aromatic divinyl monomer of formula (D):



in which R₁ = H or CH₃;

- at least one (meth)acrylic monomer of formula (E):

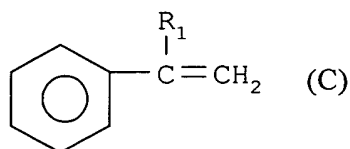


in which R = H or CH₃ and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C₁-C₄)alkyl radical or a
 25 polyoxyethylene group of formula -(CH₂-CH₂-O)_nR" in which n is an integer between 1 and 10 and R" = CH₃ or C₂H₅;

- diallylphthalate;
 - at least one acrylic monomer having at least three reactive functions; or
 - combinations thereof.

19. The composition according to claim 10, wherein said composition further
 30 comprises:

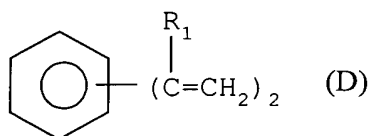
- at least one aromatic monovinyl monomer of formula (C):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one aromatic divinylic monomer of formula (D):

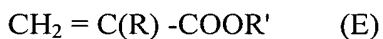
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in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):

10



in which $\text{R} = \text{H}$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C_1 - C_4)alkyl radical or a polyoxyethylene group of formula $-(\text{CH}_2-\text{CH}_2-\text{O})_n\text{R}''$ in which n is an integer between 1 and 10 and $\text{R}'' = \text{CH}_3$ or C_2H_5 ;

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- diallylphthalate;

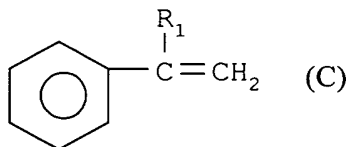
- at least one acrylic monomer having at least three reactive functions; or

- combinations thereof.

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20. The composition according to claim 11, wherein said composition further comprises:

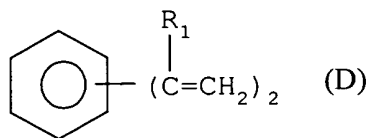
- at least one aromatic monovinylic monomer of formula (C):



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in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one aromatic divinylic monomer of formula (D):



in which $\text{R}_1 = \text{H}$ or CH_3 ;

- at least one (meth)acrylic monomer of formula (E):

5



in which $\text{R} = \text{H}$ or CH_3 and in which R' is a linear or branched alkyl radical having from 1 to 16 carbon atoms, an optionally substituted benzyl or phenoxy(C_1 - C_4)alkyl radical or a polyoxyethylene group of formula $-(\text{CH}_2 - \text{CH}_2 - \text{O})_n\text{R}''$ in which n is an integer between 1 and

10

10 and $\text{R}'' = \text{CH}_3$ or C_2H_5 ;

- diallylphthalate;

- at least one acrylic monomer having at least three reactive functions; or

- combinations thereof.

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21. The composition according to claim 1, wherein said composition further comprises an effective amount of at least one photochromic colorant which confers photochromic properties to said composition.

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22. The composition according to claim 21, wherein said at least one photochromic colorant is selected from the group consisting of spiroxazines, spiropyrans, chromenes, fulgides, fulgimides, and combinations thereof.

25

23. The composition according to claim 2, wherein said composition further comprises an effective amount of at least one photochromic colorant which confers photochromic properties to said composition.

30

24. The composition according to claim 3, wherein said composition further comprises an effective amount of at least one photochromic colorant which confers photochromic properties to said composition.

25. The composition according to claim 5, wherein said composition further comprises an effective amount of at least one photochromic colorant which confers photochromic properties to said composition.

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26. The composition according to claim 12, wherein said composition further comprises an effective amount of at least one photochromic colorant which confers photochromic properties to said composition.

5 27. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 1.

28. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 2.

10 29. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 3.

15 30. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 5.

31. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 12.

20 32. A resin obtainable by radical copolymerisation of a polymerisable composition according to claim 21.

33. An article which comprises a resin according to claim 27.

25 34. An article according to claim 27, wherein said article is an ophthalmic article.

35. An article which comprises a resin according to claim 28.

36. An article which comprises a resin according to claim 29.

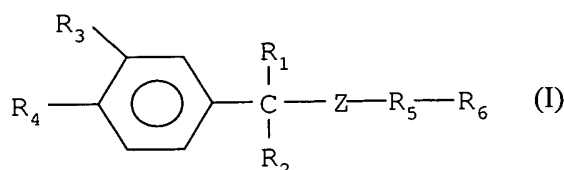
30 37. An article which comprises a resin according to claim 30.

38. An article which comprises a resin according to claim 31.

35 39. An article which comprises a resin according to claim 32.

40. A monofunctional monomer having the formula (I) below:

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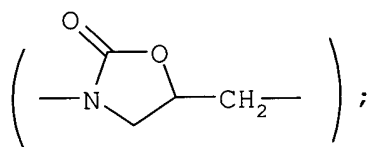
in which:

- R₁ and R₂, which are identical or different, independently are hydrogen or an alkyl radical which is linear or branched and comprises 1 to 4 carbon atoms;

5 - R₃ and R₄, which are different, independently are one hydrogen and the other an alkenyl radical comprising 2 to 6 carbon atoms;

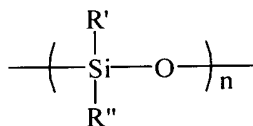
- Z represents a carbamate function (-NH-CO-O-), a thiocarbamate function (-NH-CO-S-), a urea function (-NH-CO-NR₇-), where R₇ represents a hydrogen or a linear, branched or cyclic alkyl group which comprises 1 to 6 carbon atoms) or an oxazolidone

10 function



- R₅ is selected from the group consisting of:

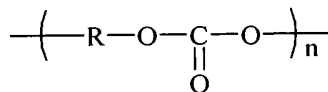
+ siloxane radicals and polysiloxane chains of formula



15 in which the R' groups and the R'' groups, which are independently identical or different when n ≥ 2, are alkyl radicals which comprise 1 or 2 carbon atoms, and in which n is an integer between 1 and 18;

+ carbonate radicals and polycarbonate chains of formula

20



in which the R groups, which are identical or different when n ≥ 2, are alkylene radicals which are linear or branched and which comprise 1 to 5 carbon atoms, and in which n is an integer between 1 and 21; and

25 - R₆ is an alkyl radical or an aryl radical.

41. The monomer according to claim 40, wherein R₃ is an isopropenyl radical.

42. A polymerisable composition comprising a monomer according to claim 40.

43. A resin obtainable by radical polymerisation of a polymerisable composition according to claim 42.

5 44. An article which comprises a resin according to claim 43.

45. An article according to claim 44, wherein said article is an ophthalmic article.

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